

Date 10/27/77 Time 1800-2000 Experimenters J.W. GlennSubject Investigation of A Line Transport LossesOBSERVATIONS AND CONCLUSION

- 1) Swept beam vertically with CPO33 and AP109. Though not at an optimum for A line, the loss at AD5-6 and the A transmission are near minimum and maximum for the typical settings of CPO33 and AP109 (Figs. 1,2).
- 2) Increased A line intensity from a typical ~ 9% (of CE010) to ~ 15%. After a quick optimization of beam to B&C the best delivery [$(A+B+C)/C10$] was 68% (vs. 77% for 9% on A). Thus it appears 1.7 protons are required to deliver 1 proton to A target.
- 3) The beam was swept at the entrance to AD1 with CD014. The delivery to B&C was ignored. The transmission increased by ~ 30% while the losses on AD1 dropped ~ 30%. The losses on AD5-6 went up by a factor of ~ 3 (Fig. 3).
- 4) Beam was steered with combinations of AD1T, AD1-8 and AD242. Increasing AD1T to its limit helped slightly but increased the losses at AD5-6 (Figs. 4,5,6).

Conclusion: A major part of the loss of beam directed toward A target occurs due to horizontal losses in AD1 and possibly AD2-8.

Recommendations:

- 1) Vertical positioning should be cleaned up though this is not critical.
- 2) The optics of CQ1, 2 & 3 should be checked for the possibility of decreasing the focusing of CQ3. This quad could bend the beam into AD1's septum.
- 3) More loss monitors are needed in the A line with a flag box at the end of AD8. The C057 SWIC should be operational to check the 1.7:1 ratio.
- 4) The possibility of running AD019 at higher current should be examined.

Note: The spot was generally centered on the A target but small motions at the A SEC could affect these results.

Note of Figures: A300F \equiv A SEC/CE010 SEC

AD19 \equiv AD19 loss monitor/CE010 SEC

AQ47S \equiv AD5-6 loss monitor/CE010 SEC

AD1 \equiv AD1 loss monitor/CE010 SEC

Fig 1

A: LOSSES AND EFF'S
9-HOU-77 18:25 19.3

YD: A380F, 0 = 0,100 =
YB: AD19, 0 = 0,100 =
YC: A047S, 0 = 0,100 =
YD: AD1, 0 = 0,100 =
10000
10000
10000
10000
10000

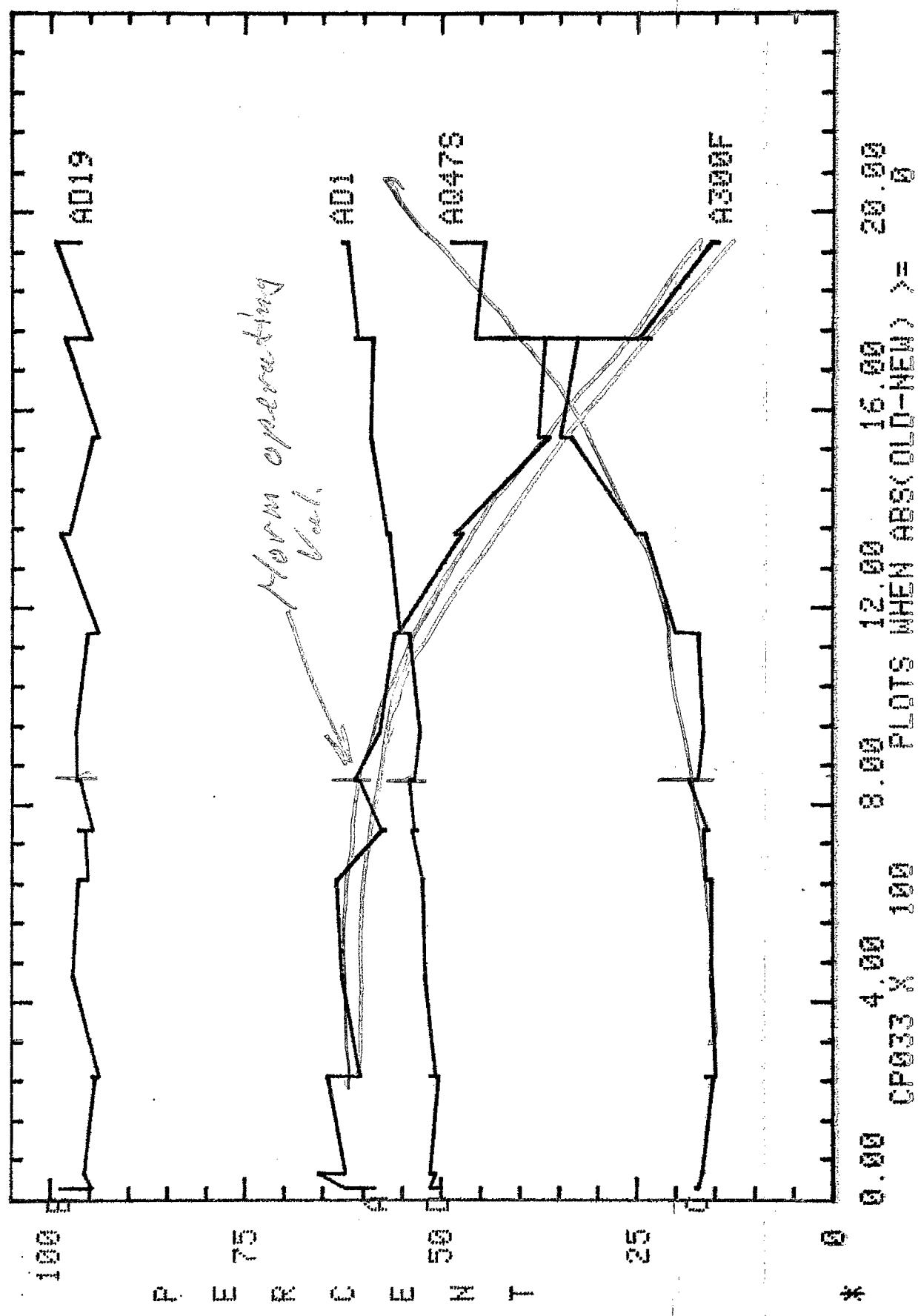
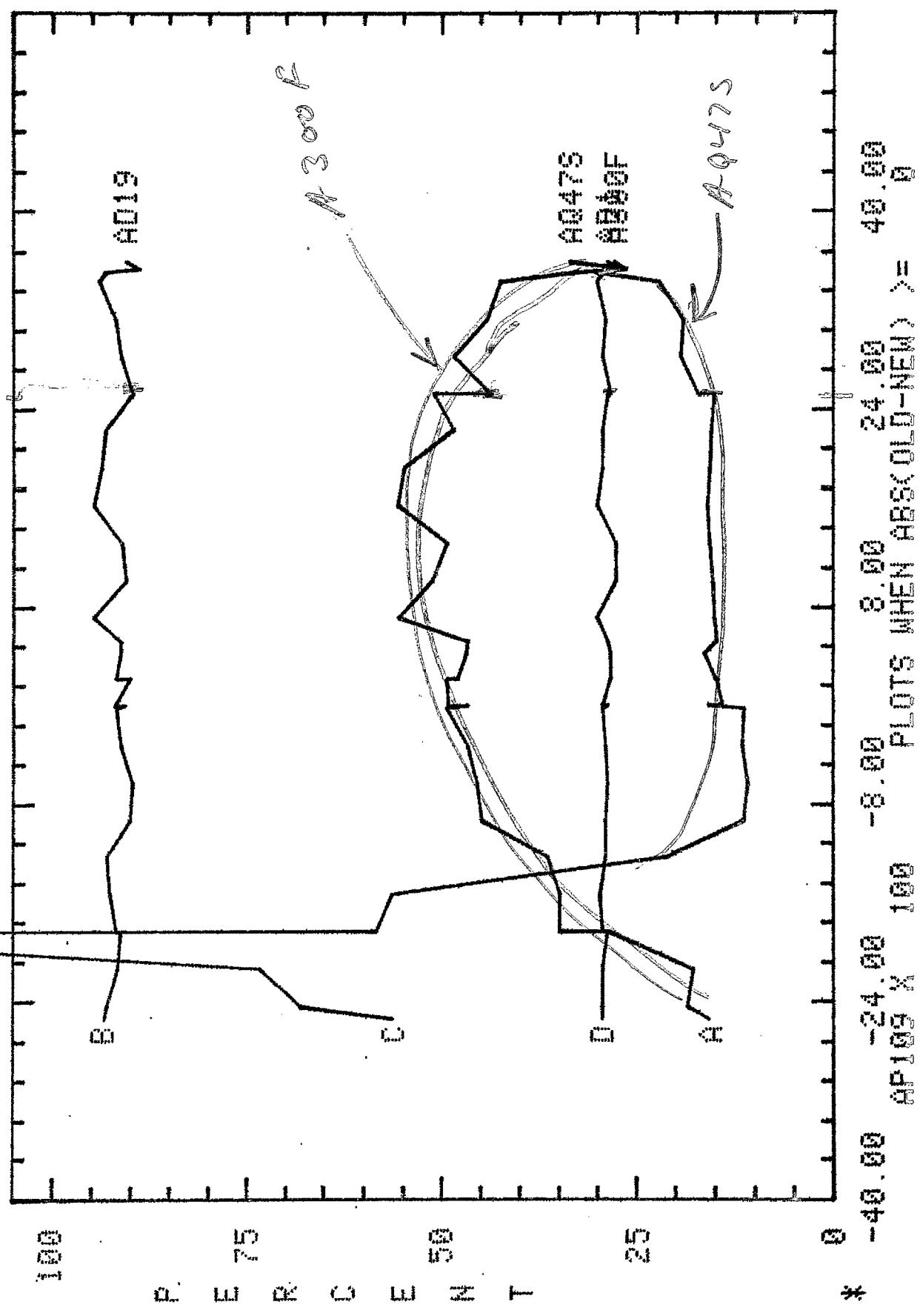


Fig. 2

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1999
1998
1997
1996
1995
1994
1993
1992





~~4-5-6-7-8~~

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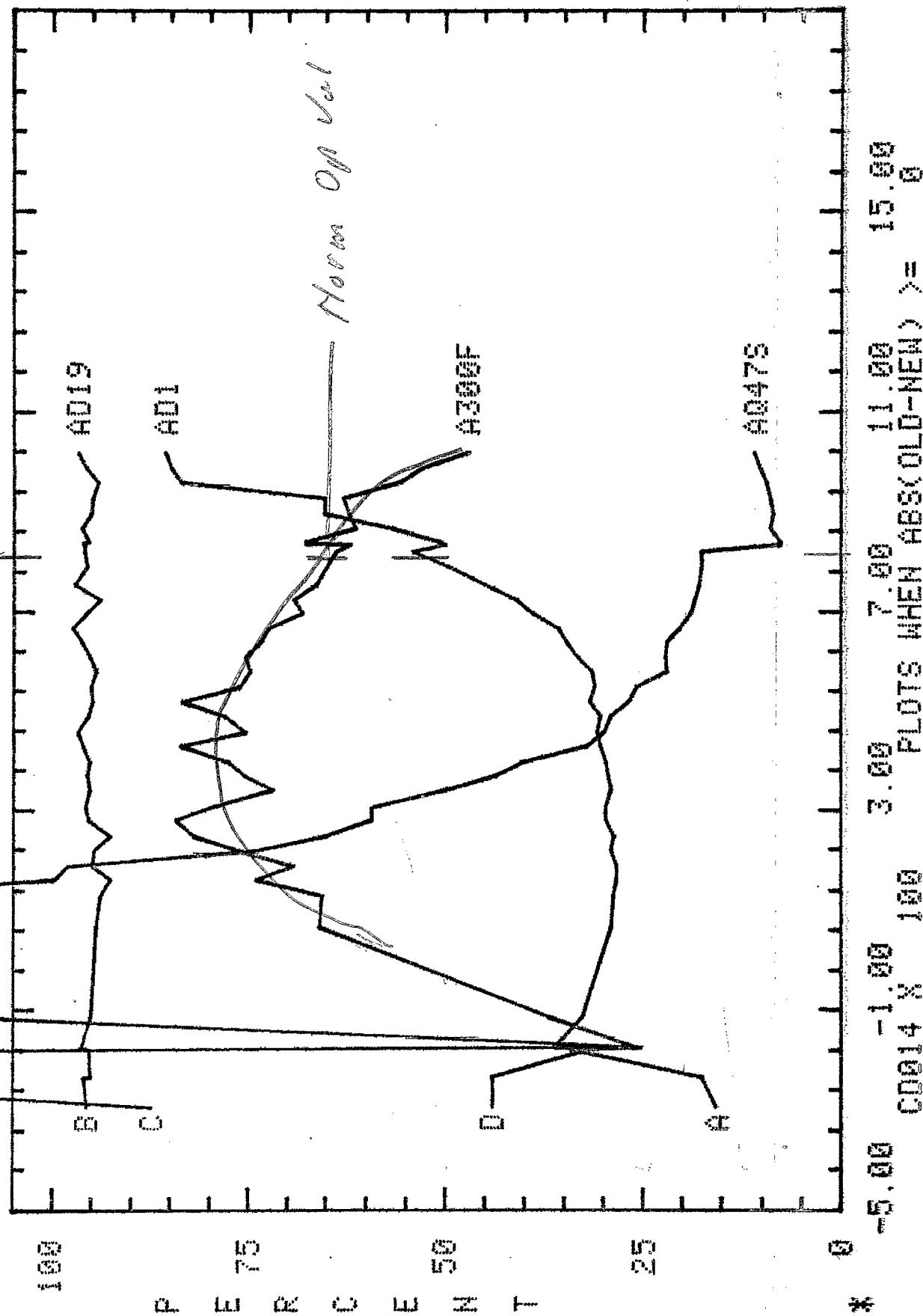
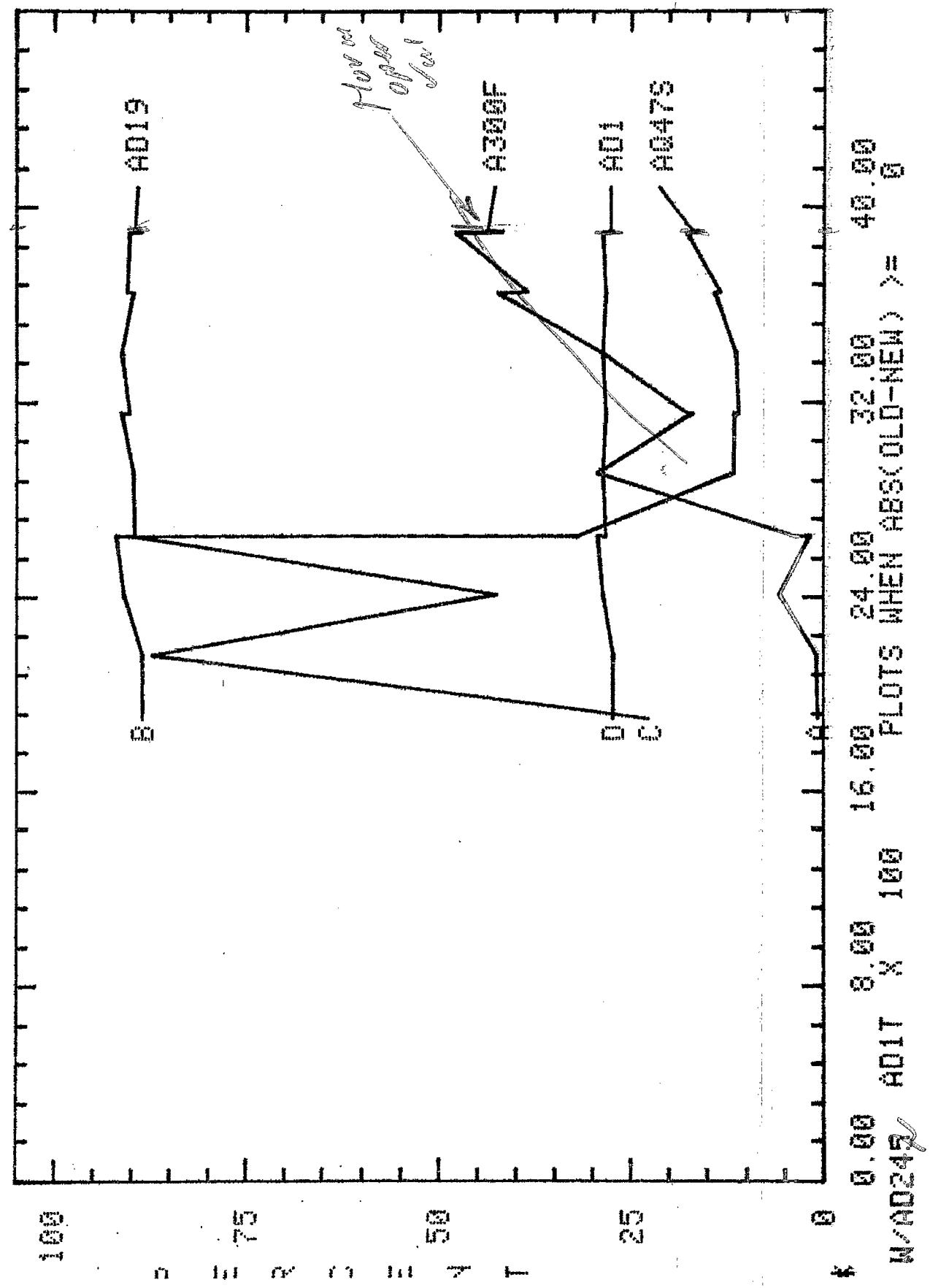


Fig 4

LOSSES AND EFF'S
9-HOU-77 18:35 51.8

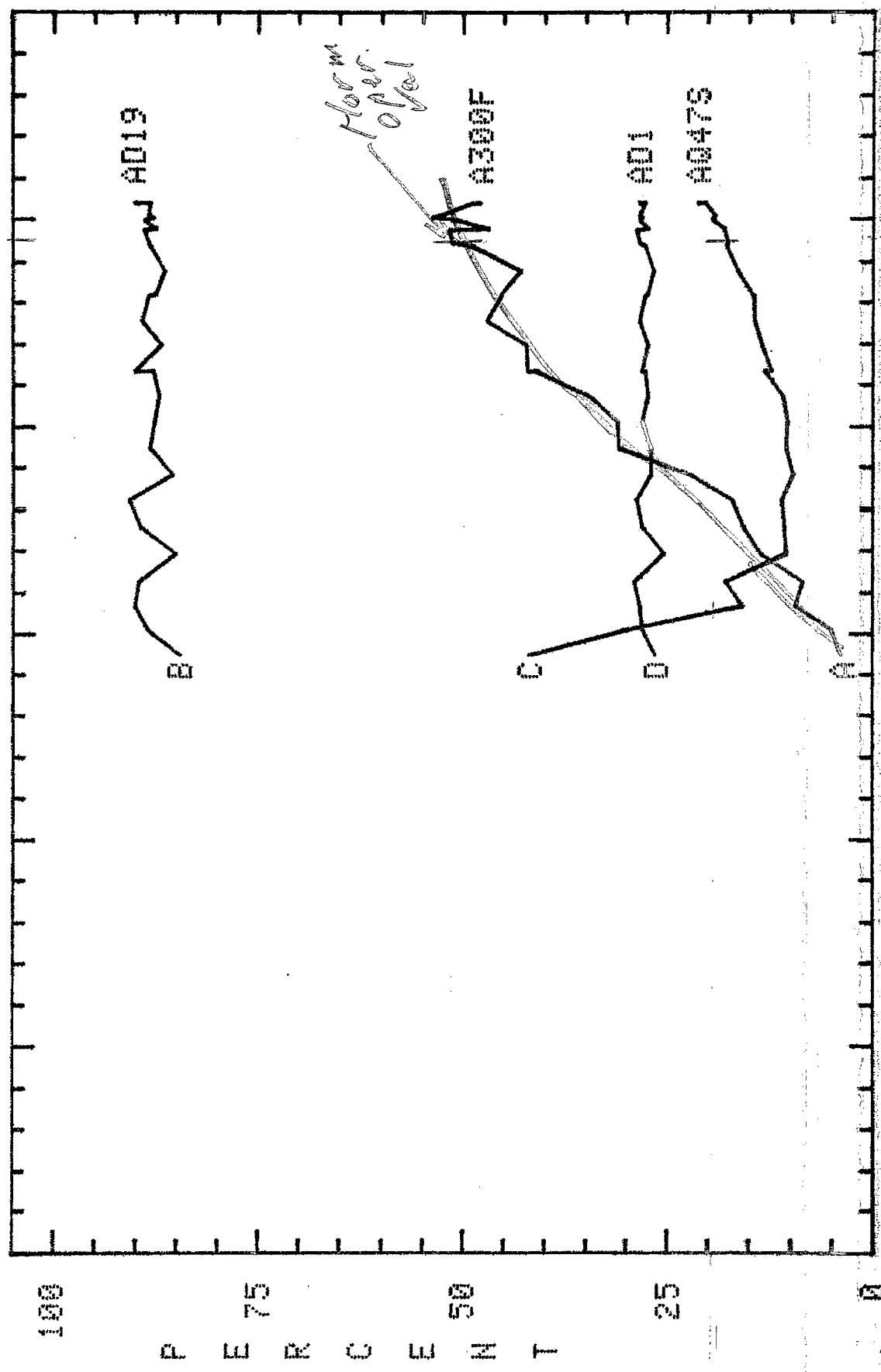
Y_A:A380F, G= 0.100= 2000
Y_B:AD19, G= 0.100= 1000
Y_C:A047S, G= 0.100= 10000
Y_D:AD1, G= 0.100= 300



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2 6 6 6
1 6 6 6
1 1 1 1
6 6 6 6



N/A01-89 ADT 8.00 16.00 PLOTS WHEN ABS(OLD-NEW) >= 40.00

